منتدى دبي العالمي لإدارة المشاريع
DUBAI INTERNATIONAL PROJECT MANAGEMENT FORUM

RTA

Public Transport Agency

Big Data Program - 2021

dipmf.ae

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Introduction

This report serves as a case study on some of the best program management practices in managing Big Data and Artificial Intelligence projects within government agencies. The report specifically explains how the Public Transport Agency for Dubai (UAE) has developed and managed a portfolio of projects that aim at utilizing available datasets to achieve benefits in terms of operational efficiencies, all through a series of use-cases contributing to a larger goal.

About Dubai

Dubai is located on the eastern coast of the Arabian Peninsula, in the south west corner of the Arabian Gulf. It is well known for its warm hospitality and rich cultural heritage, and the Emirati people are welcoming and generous in their approach to visitors. With year-round sunshine, intriguing deserts, beautiful beaches, luxurious hotels and shopping malls, fascinating heritage attractions and a thriving business community, Dubai receives millions of leisure and business visitors every year from around the world.

About RTA

The Roads and Transport Authority (RTA) emerged in November 2005 as a public entity with an independent corporate body and a full legal capacity to perform all business and actions needed to achieve its objectives. RTA is a government-owned entity based in Dubai.

RTA plans and constructs transportation and road projects within Dubai, or between Dubai and neighbouring emirates. It enacts rules and regulations and draws up comprehensive strategic plans for road systems and land and marine transit networks to keep pace with Dubai's economic development plans according to the highest international standards. Its roles include developing and implementing policies necessary for achieving optimal utilization of existing transport and traffic elements. It attends to studying and endorsing the privatization of related businesses, and establishing, managing, and commissioning an integrated transport system that provides services customized to community needs.

It sets up regulations and administrative and operational systems relating to its core business. It compiles and implements findings of studies conducted for fixing and implementing fees to traffic and roads including proposing fares for using roads network, licensing drivers and vehicles, and setting fare structures for mass transit routes. It attends to upgrading legislations and procedures of drivers and vehicles registration and licensing to realize the strategic objectives of the transport system in Dubai, and conducts licensing of mass transit routes and all RTA business-related activities.

RTA Organizational Structure

The Dubai Roads and Transport Authority consists of 3 corporate sectors, 4 operational agencies and Dubai Taxi.

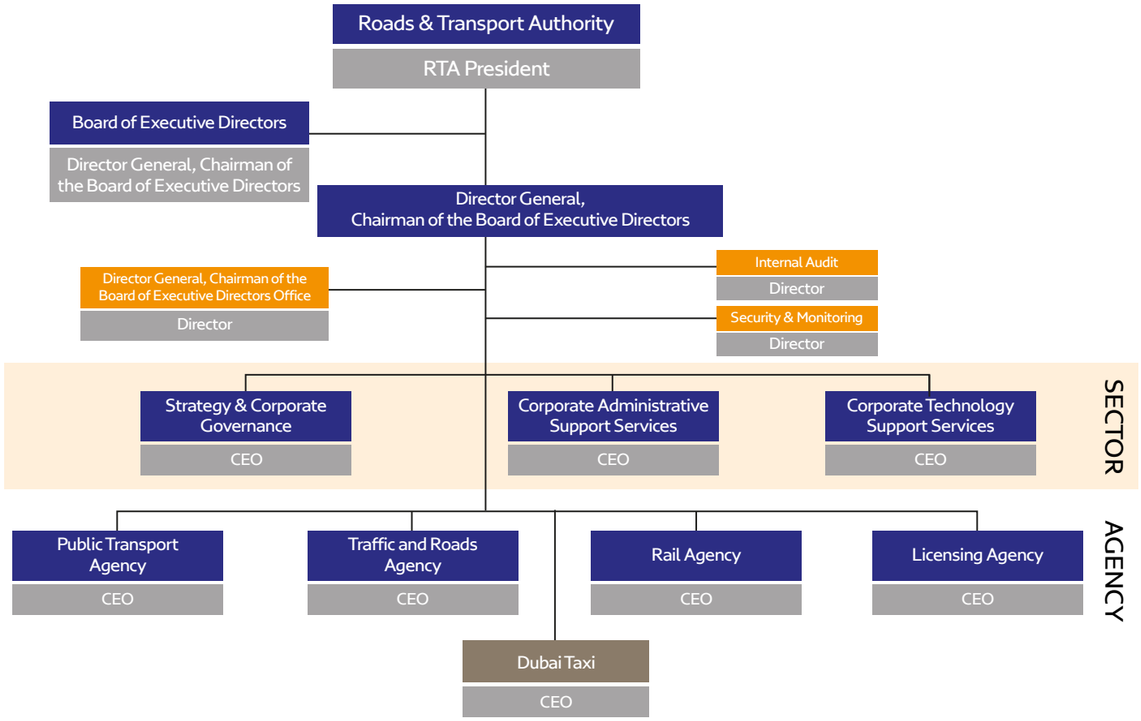


Figure 1 : RTA Organizational Structure

Dubai's Aspiration as a Leader in 4th Industrial Revolution

The UAE has joined the list of the best 15 economies in the world according to the global competitiveness report 2014/15 issued by the world Economic Forum, achieving the first rank globally in the quality of its road for the last 3 years. Dubai is an innovative city uses information and communication technologies and other means to improve quality of life, efficiency of urban operation and services, and competitiveness while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects. RTA is among the key strategic partner of Smart Dubai for Smart City initiative and Dubai Plan 2021.

RTA is the main contributor to Smart Mobility dimension of Smart Dubai and contributes to other important dimensions such as Smart Economy, Smart Living, and Smart Governance. RTA introduced Smart Dubai and people Happiness as new strategic goals in its corporate strategy to reflect the new direction from Government of Dubai. RTA is fully aligned with Dubai Government's vision of transforming Dubai to be the Smartest and Happiest City by 2021. The vision of RTA is 'Safe and Smooth Transport for All'.

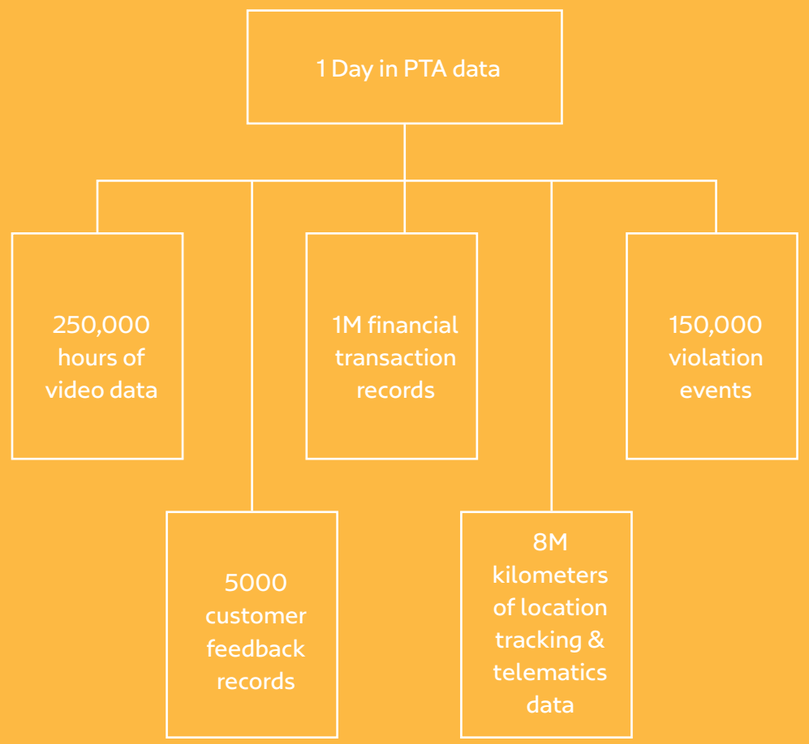
Dubai's aspiration to also be a leader in the 4th industrial revolutiontechnologieshave led the development of policies and drivers aroundusing advanced analytics, artificial intelligence, block chain, metaverseand other advanced technologies within the government space. In fact, Dubai isthe world's first city where sharing of data is mandated by law. The Dubai Data Law (2015) mandates all government bodies to share, use and reuse the data and since then, policies and procedures were put in place at all levels to ensure data utilization in maximized. In addition, the authority responsible for data (Digital Dubai Authority) conducted a series of government-wide challenges to ensure that all organizations are achieving high-level of maturity in terms of data usage.

Dubai also launched tools such as Dubai Pulse (for sharing open government data with the public), Dubai Registers (for developing uber-updated records for public consumption), as well as platforms to encourage intergovernmental data sharing.

About the Public Transport Agency

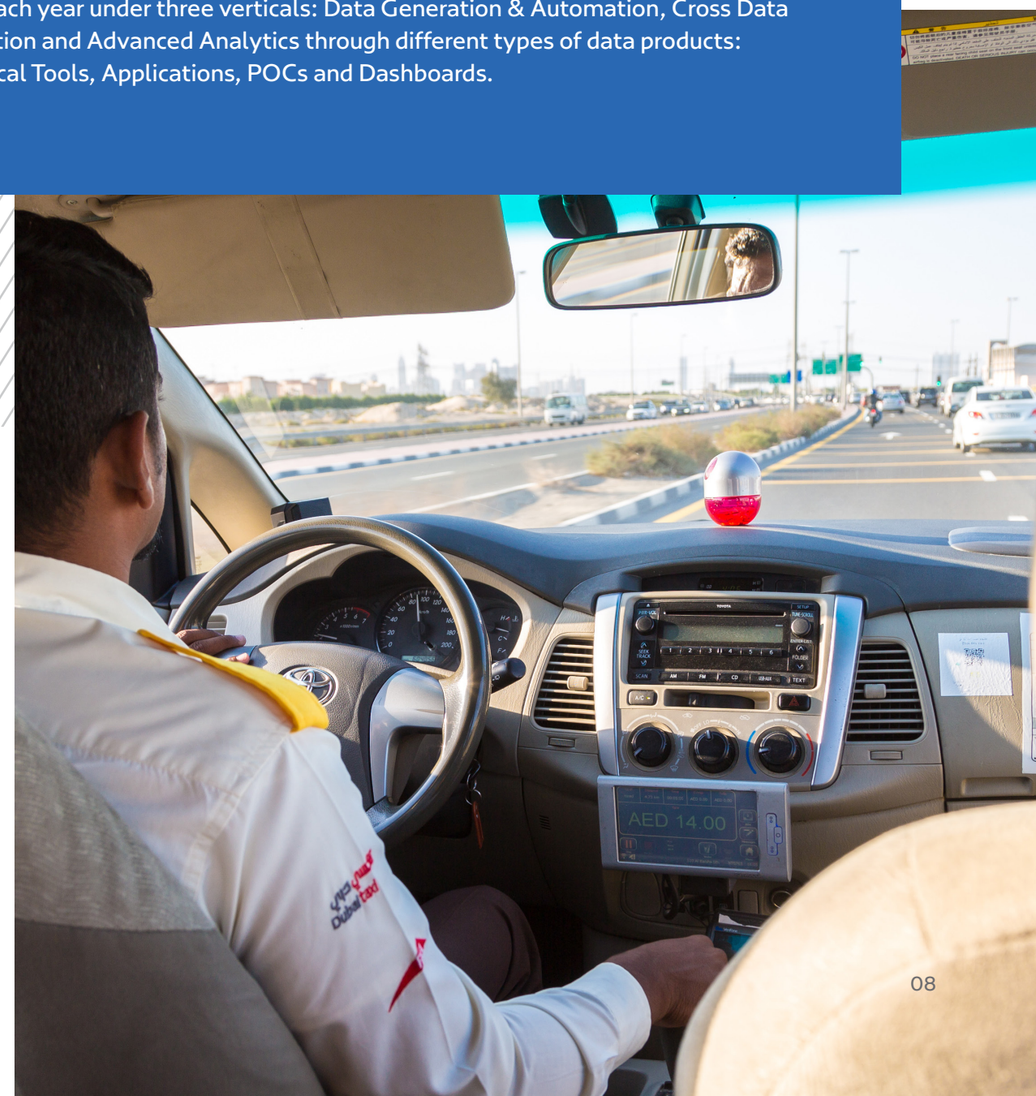
The Public Transport Agency is a part of Dubai's Roads and Transport Authority that is mandated to operate public transport services in Dubai. PTA currently focuses on 7 different mobility sectors within Dubai including public busses, marine transport, taxis, electronic hailing, luxury vehicles, car sharing and school busses on a broad range of capacities from operations, to regulations to even driver management.

PTA employs a wide range of technologies to ensure its pioneering position among other public transport operators including unified payment systems, in-vehicle Wi-Fi, advanced telematics and tracking systems, driver behaviour monitoring and management systems. In addition, PTA is leading projects on autonomous vehicles, autonomous aerial taxis, smart mobility testbed, smart monitoring centre and others related to next generation transportation technology.



About the PTA Big Data Program

With the plethora of devices equipped in the different modes of transport, PTA is home to large collection of ever-increasing data such as operational data from vehicles, real-time and archived location data, driver & driving behaviour data, fuel consumption and accident data, data related to surrogate safety measures, and high-resolution mobility data of the citizens and residents of Dubai using the PTA ecosystem of transport. In 2019, the agency created in first Big Data Program that focused on enhancing utilization of this data to improve system efficiencies, trialling industry-leading data products and reduce human error and workload in planning, operating and reporting on our transportation network. The program that run annually since then was tailor-made to include 15-20 different use-cases each year under three verticals: Data Generation & Automation, Cross Data Integration and Advanced Analytics through different types of data products: Analytical Tools, Applications, POCs and Dashboards.



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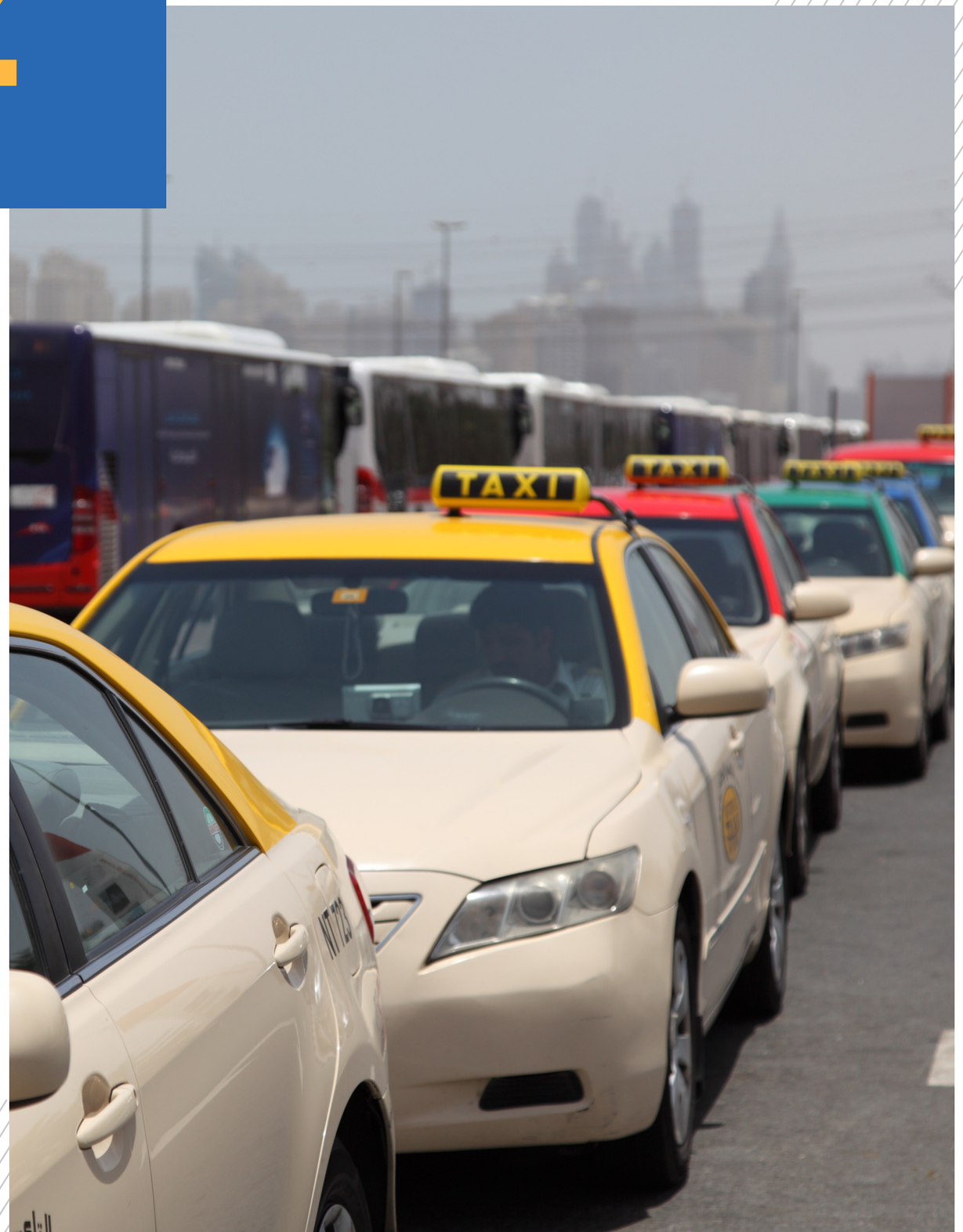


The Big Data Program 2021

The Public Transport Agency operates and regulates seven different mobility systems in Dubai, including public busses, taxis, electronic hailing vehicles, limousines, marine transport, school buses, with many subtypes and categorizations under each of the seven mobility system. These mobility systems are equipped with tools that collect data regarding usage, operations, maintenance, and other critical aspects, which make the agency a powerhouse of data. The program aims at executing use-cases that use big data and AI to reduce operational costs, improve efficiency, and improve user experience. The use-cases range in scope from simple dashboards that help monitoring teams identify illegal operations to more advanced systems such as the Alibaba Smart Traffic System, which uses AI to better plan bus routes.

Big Data Program Objective

Reduce Operational cost | **Improve Efficiency** | **Improve user experience**

Program Objectives and Strategic Alignment

The Big Data Program for each year is conceptualized through a process streamlined to improve our data maturity as well as closing core gaps that exist within the organization. The process involves 5 steps:

01

Maturity Assessment – First step is to perform a three-tiered maturity assessment at each department, assessing the maturity in terms of data generation, data integration and data analytics.

Level 01

Manual data generation and usage: limited data usage

Need to assess multiple systems, or ineffcient data acquisition.

Processes lacks analytics and are mostly welcome

Level 02

Mostly automated data generation and usage

Need to assess multiple systems, or ineffcient data acquisition.

Processes lacks analytics and are mostly welcome

Level 03

Generate/use large machine generated "archuved" data-sets

Some processes rely on accessing data from mulitple systems.

Processes are mostly reactive, but some are proactive.

Level 04

Generated and utilize Big Data in real-time

Most processes rly on well-intergrated data system.

Processes and decision-support system are proactive/predictive

Level 05

Generated and utiliza Big Data in real-time

Most processes/decision-making rely on well-integrated data system.

Real-time & predictive analytics are completely utilized with AI/ML use-cases.

Legend

- Data Generation/Usage by the Department
- Process integration with data source(s)
- Level of Analystic in Department Processes

02

Gaps Assessment – Based on the current maturity and potentially achievable maturity, gaps are assessed for each department.

03

Use-case Discovery- Based on the assessed gaps and the industry best practices and benchmarking, use-cases are identified for potential development in the next year.

04

Use-case Prioritization – Use-cases are then prioritized based on the benefits they provide and the complexity of development, and then are classified into four categories: Embrace, Consider, Experiment, and Avoid.

Prioritization framework

70% Benefits

- Direct Revenue Impact
- Planning & Operational Imapct
- Safety Environment Happiness
- Multi-Modal
- Analytics Maturity via AI

30% Complexity

- Data Availabilty
- Data Preparation
- Data Visualization
- Data Modelling

Consider

06

Benefit
High and clear

Complexity
High or unmanageable

Embrace

17

Benefit
High and clear

Complexity
Low and unmanageable

Avoid

0

Benefit
Low or uncertain

Complexity
High or unmanageable

Experiment

03

Benefit
Low or uncertain

Complexity
Low and unmanageable

05

Program Development – Based on the prioritization, use-cases are selected by each department for eventual execution from the Embrace and Experiment category Overall, the program aligns strategically with RTA's vision to be a data-driven mobility organization, but also could have indirect alignment with other strategic objectives such as People Happiness, Asset Sustainability and Smooth Transport for All.

Program Roadmap and Deliverables

As an example of the annual program, the 2021 program included 21 use-cases identified over 7 departments (represented by 7 projects). The program consists of 3 trials, 3 automation projects, 2 dashboards, 8 analytical tools and 5 reporting products.

Task	Big Data Program Period											
	1	2	3	4	5	6	7	8	9	10	11	12
Gaps Assessment & Identification of Use-cases												
Prioritization and Roadmap Creation												
Discovery & Requirements Gathering												
Rapid Prototyping & Wireframing												
Data Engineering & Model Development												
Model Development												
Testing and Evaluation												

The following section will introduce illustrations of some of the program use cases:

Use Case #1: Bus Runtime Analysis

Problem Statement: The On-Time Performance (OPT) of public busses form a very important metric to the customers. PTA's buses had an average OTP of around 70 percent, which means, that the other 30% of times, the passenger either had a long waiting time, or would have missed the bus. Some of the major causes of this were the external factors outside of the public transport operations control, such as traffic conditions, roadway incidents, unfavourable weather, long boarding and alighting times etc.

Approach: Using Big Data, we could slice and dice the performance data of bus routes and segregate the impact of these external factors on our OTP. This means that a tool could be developed that can generate potentially achievable schedule for different times of days, based on the historic performance of buses. Under the Big Data Program, a use-case was developed to codify this concept in a series of simple and effective dashboards. The dashboards are built on over 5 years of operational data, represented by 500,000,000 data points to provide sufficient statistical advantage to the end user, and had elements of geospatial analysis, clustering techniques as well as causational analytics.

Challenges: Since the dashboard was created from scratch, defining the user interface ? (UI) to be intuitive enough to easily play around with 170+routes was a major challenge. In order to solve this, the team developed two sets of UI – one representing the route-level analysis, and the other representing system-level analysis and can be used to easily switch around between the two.

Results: Updates to the schedule were much easier with the tool, since it makes it easier for the analyst to understand specific change elements, and over the course of next 4 months, the OTP improved to 78%. There was almost a 60% reduction in time to optimize the schedules as well.

Use case #2: PTA Statistics Dashboard

Problem Statement: The agency submits monthly statistics to the statistics section via a well-established process. But the PTA staff who require statistics to perform their studies had to go through a lengthy process to use these, requiring multiple approvals and all. (I think this paragraph should be rephrased to show a real challenge

Approach: Given the maturity of PTA systems and the analytics behind generation of statistical measures, a dashboard was created to reflect all important PTA statistical data in a unified and usable format, as the PTA Statistics Dashboard. It represented a single source of information for any PTA employee to visualize and if-needed, download statistical data to conduct further studies.

Overall Ridership
198.7M

Bus
88.5M

Taxi
92.1M

Car Sharing
370.1K

E-Hail
16.5M

Marine
1.2M

A screenshot example of PTA Statistics Dashboard

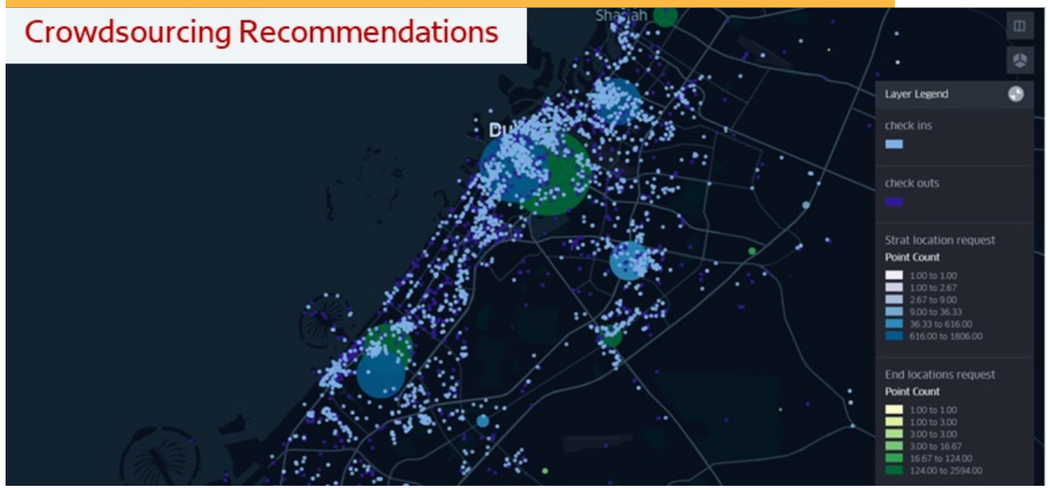
Challenges: One of the main challenges in developing a statistics dashboard was the breadth of statistical information that PTA generated. We have nearly 100 statistical information with varying details across our departments, and it was a huge task to automate all of them. Hence, the statistics dashboard was created in three phases, with each phase focusing on only few datasets according to the assigned priority.

Results: The dashboard enabled 1-click access to all necessary information to the PTA staff.

Use case #3: Crowdsourcing Recommendations

Problem Statement: Public Transport Operators are often challenged with locations where bus routes need to be operated. Some rely on household travel surveys, whereas others rely on simulated travel demand based on work-home-leisure locations. A few operators around the world use real commuter behaviour collected via Mobile Phone Data (MPD), or even targeted crowdsourced data to develop viable and feasible bus routes. PTA took an alternative approach in the absence of MPD – commuter voice data collected via RTA's smart journey planning application, S'Hail.

Approach: Two pronged approach consists of developing a crowdsource-sub application within the Journey Planner that commuters can use to provide potential origin and destination pairs (OD), and a data science model that ingests all the available OD pairs, clusters them along with the current network map, and develop suggested network improvements. Together, this formed an effective tool to develop the bus network sufficient enough to cope up with the commuter demand.



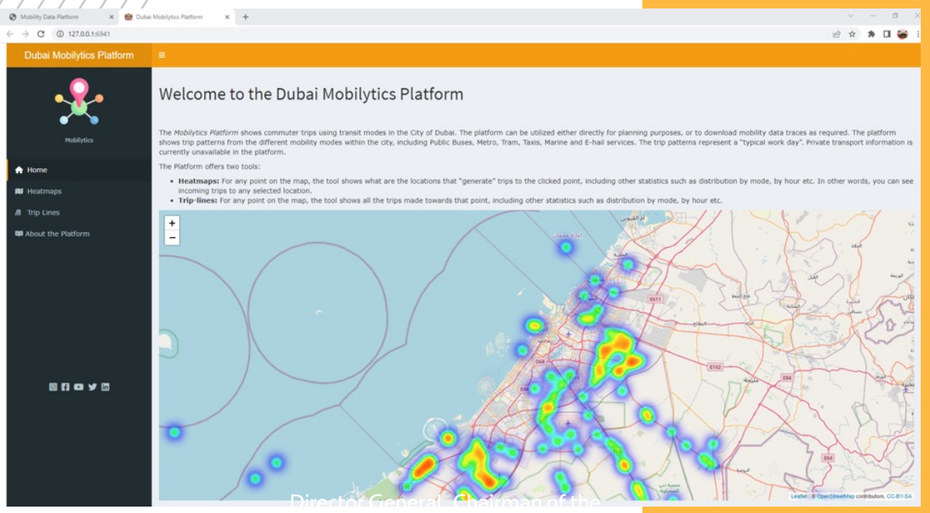
Challenges: Implementing the bus route expansion always comes with a cost, or impact on the cost recovery ratio. This was particularly challenging because commuter suggestions were not proportional to actual demand. The team used a careful phased implementation to ensure that there's sufficient demand before scaling up operations.

Results: The first route that was an outcome of the crowdsourcing itself had almost a million annual users. In addition, more than 10 routes were modified and has seen improved ridership over the first 6 months.

Use case #4: Mobility Data Platform

Problem Statement: PTA runs, operates and regulates 7 different modes of transport, and we have the technology to gather high-resolution trajectory trace from our systems. Dubai uses an NFC-based digital ticketing solution called NOL that is used for checkins and checkouts in all public transport modes such as metro, tram, buses and marine vessels. NOL payment can also be used for payments in taxis and parking. Using this single payment mean, we are also able to generate linked trips of commuters in Dubai. This data was identified as a potentially monetizable source of income for RTA. However, showcasing this data, and the value it brings into the investors was hard.

Approach: This use-case aims at developing a platform that can be used as a showcase for this data, and its particular properties, while protecting the privacy of users through advanced security features such as edge-trimming, unlinking etc.



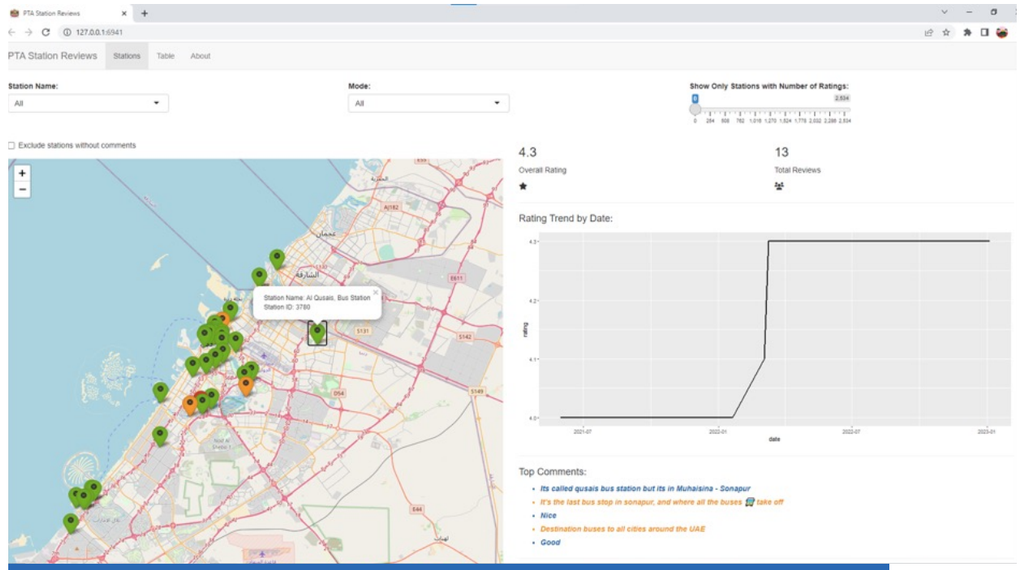
The platform enables users to see specific origins of trips with a footfall in a user-selected area, and vice-versa, which is useful for data commercialization purposes.

Results: The platform was showcased in several trade-shows RTA has received several potential partners to help expand and monetize this dataset and platform. Initial estimates show the potential to generate nearly 5 million in annual revenue using this dataset.

Use case #5: Google Station Reviews

Problem Statement: Traditionally, the Public Transport Agency was focused on customer complaints via our CRM system to make improvements to the Bus and Marine stations. However, it was found that Google Maps reviews were potentially a good source of customer feedback, as they were anonymous and includes both positive and negative feedback. However, scraping through reviews of around 50 bus and marine stations was impractical.

Approach: As part of the Big Data Program, a tool was developed, that regularly extracts customer feedback from Google Maps for the different bus and marine stations, and provide advanced analytics on them, including trends and time series, sentiment analyses etc. The tool formed an important part of our feedback management program and served as an additional channel to listen to the customers.



Challenges: Since the application was developed using Google Maps API, it was quite challenging to deploy it in RTA's Enterprise servers. As a workaround, the tool was developed as a desktop app and was circulated to the relevant analysts.

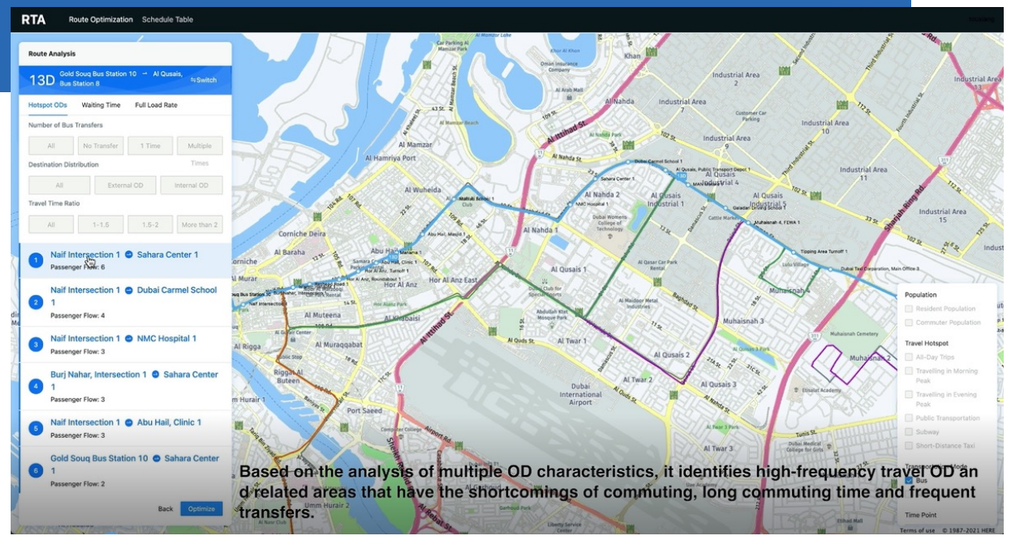
Results: As a result of using this app to enhance station features, almost 70% of the stations have improved its rating to above 4 stars within 6 months of the usage.

Use case #6: AI in Network Planning

Problem Statement: Traditionally, bus network planning is considered an optimization-heavy task, and requires meticulously detailed multi-objective optimization that includes user demand, available supply, fixed-location infrastructure, fleet management & driver management objectives etc. In addition, operating buses in response to varying demand is generally considered an operational task where decisions are made based on allowable deviations from plans.

In order to optimize the three tasks – Planning, Scheduling and Operations, require a plethora of tools, datasets, skillset and a network of planners and operational dispatchers. The growth of Artificial Intelligence could pose an opportunity to streamline these tasks.

Approach: As a pilot, the PTA undertook a partnership with Alibaba Cloud for their City Brain product that aims at just doing this. By analysing millions of data points from planning, scheduling and operations, it can prescribe changes in all, both in real-time as well as for the next planning cycle. Changes may include network changes, additional services, service changes etc. that can improve the network and revenue of the RTA. In this pilot, we focused on routes in the Old Deira region, which is one of the most congested, yet public transport-focused regions.

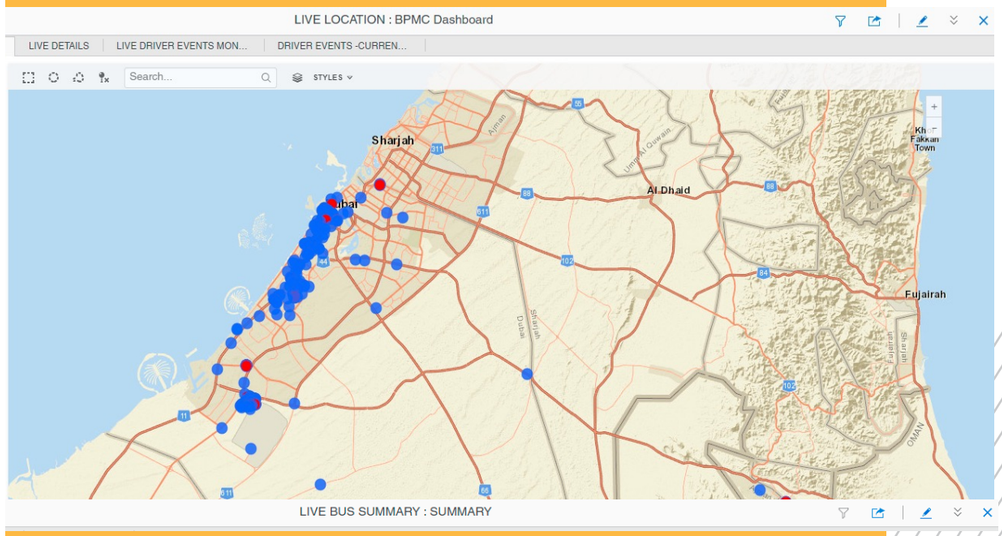


Results: The POC showed significant improvements in bus routes, including nearly 10% improvement in ridership, while reducing the operational costs by 5%. Based on the results, it was decided to invest further in AI to streamline public transport planning and operations.

Use case #7: Vehicle Health Monitoring

Problem Statement: Over the last three years, the Public Transport Agency had invested in multiple fleets of new buses, each of them equipped with a suite of sensors that capture data from engine, and other parts of the vehicle. However, these telematics providers were different, and hence it was impractical for live performance monitoring using the tools developed by the providers.

Approach: The PTA developed its own Vehicle Health Monitoring tools that integrates data from multiple sensors and multiple types of fleet, into a unified platform. The platform makes it easy for PTA's Bus Performance Monitoring Center (BPMC) to visualize and action on critical alerts.



Challenges: Development of this unified dashboard required multiple integrations with different telematics systems, where data is generated at different frequencies.

Results: Using the system, the BPMC staff was able to action on over 2000 distracted driver events, over 1700 drowsy driver events, nearly 25000 harsh-driving events and 11 mechanical alerts that would've caused service disruptions.

Program Governance

Given the importance and vastness of use-cases within the Big Data Program, and the reliance on external teams in getting use-cases done, a proper program governance and support structure were of high importance. The program manager worked closely with all 7 project managers to ensure day-to-day progress of use-cases. Decisions and escalations were handled in the Big Data and AI committee, which reported to the Program Sponsor, which is the PTA Chief Executive Officer. A support network from corporate sector was also included to ensure IT infrastructure, Big Data and AI platforms at a corporate level were used in the developing these use-cases.

01 Smart Services Department, who maintains and manages the eco-system of Big Data and AI infrastructure within the RTA.

02 Technology Strategy and Governance, responsible for governing Big Data and AI initiatives within the RTA.

Key Program Management Tools

Since the Big Data Program consists of incremental use-cases that are created internally, the following key program management practices and tools helped in creating a success out of it.

01

Project Twinning - Each use-case is developed on a twinning basis, with a project manager & team on the development side and another project manager & team on the business side. Having two project managers ensure that the use-case development is managed properly, and its inclusion within the business process is managed properly. This helps in properly attaining benefits from the use-cases.

02

Unified Scoping & Review Gates - Each use-case is developed through a unified process that starts with a discovery session, requirements gathering stage, mock-up development stage, minimum viable product development stage, fully functional product development stage, and production deployment stage.
Each of these stages involves full coordination and review from all stakeholders, and unifying the process ensured high integrity.

03

Multitier Reporting - The project managers reported progress, risks, challenges, benefits, etc. at multiple tiers to ensure that the use-cases developed are widely reviewed, reported, and utilized. Lessons learned are also key deliverables reported. The levels of reporting are provided below:

A Weekly reporting and stand-ups: Each project manager report the progress, hurdles and any approvals required with the Program Manager.

B Monthly reporting: Each project manager reports the monthly progress, risks and mitigation approach with the Program Manager and the Agency Program Management Officer.

C Quarterly reporting: Each project manager reports the quarterly progress with the Program Sponsor.

D End of the Project Reporting: Each project manager reports the end of the project status, including impact assessment, lessons learned and future directions to the Program Sponsor, which is then reported to the Director General.

04

Benefit Realization Practices - Post-development and deployment of the use-cases, project managers were still responsible for ensuring the benefits of the use-cases on a quarterly basis. In addition, the benefits were compared with the expected benefits prior to deployment.

03

Measuring the Program Benefits

The PTA Big Data Program consists of use-cases ranging from trials and experimental ones that typically do not provide direct measurable and long-term benefits to use-cases that are based on established data science methodologies, which if implemented should given tremendous benefits. Hence realization and measurement of benefits from the program requires a well-thought framework that has been hence created by the PTA.

Benefit Categories

The project managers have been tasked to measure the benefits in terms of improvements in processes, reduction in resources and improvements in performance through this framework as shown below:

Improved Process

01

What are the exisiting processes improved due to the use-case? What is the magnitude of improvement?

02

What are the new processes enabiling improvement in the department due to the use-case?

03

Is the use-case part of the official process within the department?

Reduction in Resources

01

Does the use-case enable faster completion of tasks? Quantify the impact on man-hours

02

Does the use-case enable improved accuracy in tasks completion? Quantify the impact on errors.

03

Does the use-case enable tracebility and governance in tasks?

Improved Performance

01

What are the direct benefits to KPIs from the use-case?

02

What benefits are provided by the use-case in non-key performance indicators

03

What are the indirect benefits provided by the use-cases on the department performance ?

The benefit realization exercise was done by the project managers engaging with the end users to not only understand the benefits of the use-cases, but also to identify blockers in achieving them.

Benefits Measurement

In order to streamline the benefits of the Big Data Use-cases, a benefits measurement toolkit was created which is set to calculate the exact benefits through a counterfactual modelling approach. Counterfactual modelling entails identifying current state versus alternate state when the use-case was not there.

Big Data Use-cases Benefits Realization

Project Name:	**PBD Big Data Project 2021**
OPMS Number:	**PTA/PBD/2893/2020**
Milestone / Use-case Name:	**Crowdsourcing Tool**
Business Department:	**Planning and Business Development**
Implementation By:	**Transportation Systems Department**
Business PM:	**<Fill in>**
Use-case Type:	**<Fill in>**

Please define which processes (official or unofficial) were impacted by this use-case:

#	Process	Improvement Type	Measure	Degree of Improvement
1	< Name of Process >	No Improvement		
2				
3				
4				
5				
6				

What was the overall impact on the resources required to perform these tasks?

#	Measure	Degree of Improvement
1		
2		
3		
4		

What were the performance measures impacted by this use-case?

#	Performance Measure	Degree of Improvement/ Period	% Contribution	Other Initiatives Contributed to Same Measure
1				
2				
3				
4				
5				

What are the Challenges in achieving full benefits from this use-case?

#	Challenge	Potential Mitigation Plan	Action Owner
1			
2			
3			
4			
5			
6			

The four blocks of the toolkit are:

01

Processes that were impacted by the use-case,
along with the impact type, impact measure and degree of impact.

02

Resources that were impacted by the use-case, along with the measure and the degree of impact. Resource reduction is one of the primary benefit of most of the use-cases that aims at developing tools or dashboards that automate existing processes.

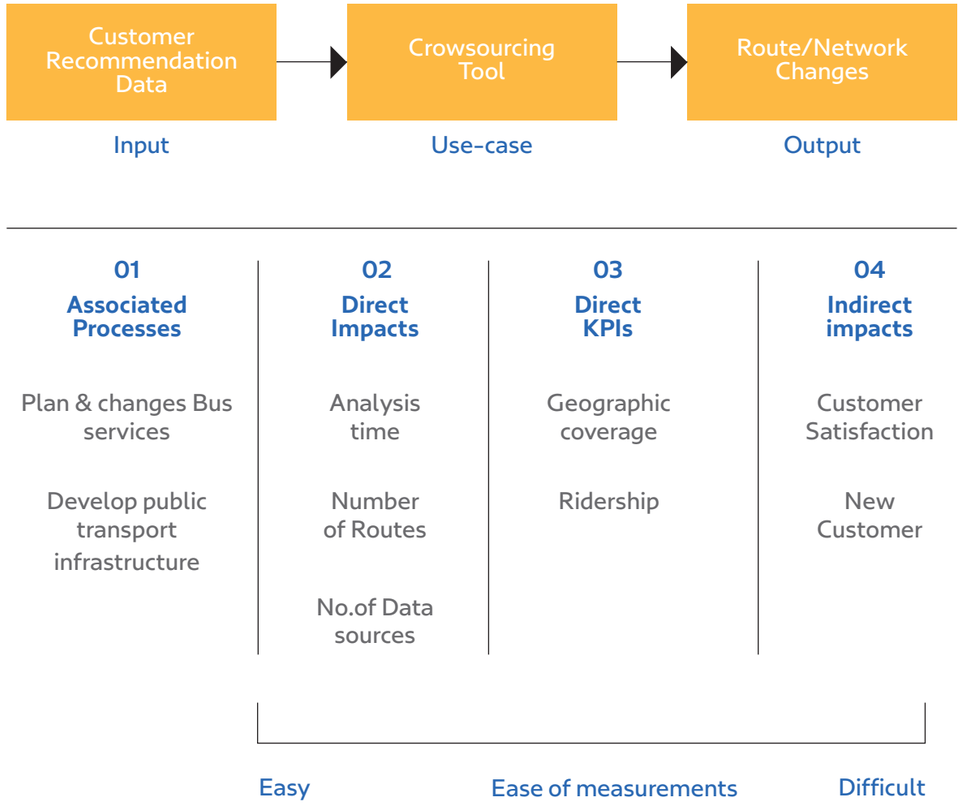
03

Performance measures that were impacted by the use-case along with the degree of impact, contribution of the use-case to the impact and other initiatives that would've contributed to the same use-case.

04

Challenges in achieving the fill benefits from the use-case including a potential mitigation plan.

An example of using the framework is demonstrated below:



Benefits Achieved

Some of the key benefits achieved in the program from the example use-cases are listed below:

Bus Runtime Analysis:
Updates to the schedule were much easier with the tool, since it makes it easier for the analyst to understand specific change elements, and over the course of next 4 months, the OTP improved to 78%. There was almost a 60% reduction in time to optimize the schedules as well.

PTA Statistics Dashboard:
The dashboard enabled 1-click access to all necessary information to the PTA staff.

Crowdsourcing Recommendations:
The first route that was an outcome of the crowdsourcing itself had almost a million annual users. In addition, more than 10 routes were modified and has seen improved ridership over the first 6 months.

Mobility Data Platform:
The platform, along with its counterpart Dubai-in-Motion, was showcased at GITEX, as well as with several potential investors, with at least 1 partner interested in using it.

Google Station Reviews:
As a result of using this app to enhance station features, almost 70% of the stations have improved its rating to above 4 stars within 6 months of the usage.

AI in network planning:
The POC showed significant improvements in bus routes, including nearly 10% improvement in ridership, while reducing the operational costs by 5%. Based on the results, it was decided to invest further in AI to streamline public transport planning and operations.

Vehicle Health Monitoring:
Using the system, the BPMC staff was able to action on over 2000 distracted driver events, over 1700 drowsy driver events, nearly 25000 harsh-driving events and 11 mechanical alerts that would've caused service disruptions.

04

Conclusions and Next Steps

The report summarized the PTA's Big Data Program which included around 20 use-cases each year. These use-cases range in scope from AI/ML models that predict our operational performance, natural language processing/ sentiment analysis on customer feedback from different channels, social media listening, image and video processing to detect anomalies and patterns. The project also ranged in scope from POCs that were just trialling new technology or algorithms to generate models based on well-established philosophies. We also discussed a concrete benefits realization framework that's flexible enough to track the benefits from incremental use-cases that could make a big impact when combined with all other use-cases.

Success Factors

The team identified several factors that contributed to the success of this project. They are:

01

Sponsorship– The program sponsor stressed on the importance of data-driven decision making through clear direction setting for the agency. In addition, Dubai Government as a whole ensured that the government wants to move towards data-driven decision making through challenges, mandates and working groups. This strengthened the motivation for the program.

02

Teamwork – Setting up of a project management team for this program that monitored the progress, hindrances etc. and offered the right support at the right time helped in fast progress, although the program is done internally and with zero budget.

03

Support Structure – The project is also supported by all departments and its directors, which helped in progressing as a department. Tying the project to improving data maturity of the departments also helped.

04

Data Literacy Programs – Since the projects were done internally, educating and teaching data science to all employees through a series of trainings, webinars, talks, hackathons and industry partnerships, helped achieving success.

Going Forward

The latest Gartner Report suggested PTA's data maturity to be "4-", which is a good time to move forward from improving data maturity to focusing on AI-specific use-cases. With that in mind, the program is being transformed into PTA Big Data and AI program with specific emphasis on applications that can support PTA in the long-term to reduce resources and achieve higher efficiency.